

An outline of approach linking black-hole-evaporation with quantum-field effects in flat spacetime

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Abstract

The results of various calculations of the Casimir effect and of the effect of particle creation by accelerated mirrors are applied to the case of a collapse-formed black hole, which in consequence produces black-body radiation. Its temperature coincides exactly with Hawking's result. The difference between the vacuum expectation values of the energy-momentum tensors of scalar and electromagnetic fields near the horizon is found. Further investigation of expanding spheres in flat-space-time should disclose where the radiation is being created and what happens near the horizon. © 1983 D. Reidel Publishing Co.

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